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1935 ——— 1972
NORMAN W. MURPHY
1956 ——— 1999

Thompson engineering company inc.

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E L E C T R I C A L E N G I N E E R S

Proj Name NEED. FMP
Proj Number 05-484.00
☐ CorConsStruct
☐ CorConsFP
☐ CorConsPlumb
☐ CorConsHVAC
☑ CorConsElec
☐ CorCons
☐ CorContractor
☐ CorOwner
☐ CorP&E
☐

December 16, 2005

DEC 19 2005

Mr. Richard Rice
DiNisco Design Partnership
87 Summer Street
Boston, Massachusetts 02110

Subject: Needham Master Plan
Public Safety Building
Emergency Generator Site Inspection

Mr. Rice:

TEC performed a site inspection of the Public Safety Building's emergency installation on November 17, 2005. We offer the following comments:

1. The existing generator is rated at 45 KW, 120/208-volt, 3-phase, 4-wire and is a diesel driven Onan unit. The generator unit is located in a basement room. The room does not have louvers to provide fresh air and exhaust air for the unit. We were not able to determine the age of the unit but our estimate is that the generator unit was manufactured in the late 1960's or early 1970's.

2. The building electric service is split into two, one for the fire department and one for the police department. Each electric service is served by a 100-ampere automatic transfer switch, which is located in each respective electric room.

3. We were unable to determine the generator testing or maintenance schedules, however the unit appears to have been maintained.

4. The generator serves various lighting and receptacle loads and includes some HVAC loads. We were unable to locate the second floor emergency panels. In addition we were unable to determine if there is any spare capacity for additional loads on the generator.

5. The installation does not meet present day codes for separation between normal and emergency power systems per the Massachusetts Electrical Code (MEC Article 700-10). The emergency panels and the automatic transfer switches are located in both electric rooms adjacent to the normal electric panels. Based on record drawings, it appears that the installation was performed before the code required the two hour separation.

It is our understanding that the Town is planning to build a new emergency communication center to be used by all Town departments during an emergency. It is also our understanding that the scope of work would include providing emergency power for communication, HVAC, lighting, and receptacle systems required for the emergency operation systems. Based on these requirements, it is our recommendation that a new diesel

driven emergency generator unit be installed to serve the Public Safety Building including the new emergency operations center.

Despite maintenance, the existing generator is approaching its life expectancy, therefore the reliability of the unit is greatly reduced. In addition, it is doubtful that the 45 KW existing generator has the required spare capacity to serve all systems required for a properly operating emergency communications center.

TEC recommends that a new larger diesel driven generator, two automatic transfer switches, and panelboards be installed to serve the building. One transfer switch shall be dedicated to serve life safety systems for the entire building per MEC Article 700, and the second automatic transfer switch shall be dedicated to serve emergency systems per MEC Article 701. New panelboards, and feeders shall be installed to serve these systems. The generator, transfer switches, and panelboards shall be installed in a two hour emergency electric room per MEC Article 700-10.

If you have any questions or require more information, please do not hesitate to call me.

Very truly yours,

Kevin W. Murphy

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